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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,153	11/29/2001	Chieng-Hwa Lin	016295.0732	5467

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EXAMINER

HOANG, PHUONG N

ART UNIT

PAPER NUMBER

2194

DATE MAILED: 01/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/998,153	Applicant(s) LIN ET AL.	
	Examiner Phuong N. Hoang	Art Unit 2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1 – 20 are pending for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1 – 11, and 13 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matia “Kernel Korner Writing a Linux Driver” pages 1 – 12 in view of Keller, US patent no. 6,289,396.**

4. **As to claim 1**, Matia teaches a method for establishing a device driver in an open source operating system (Linux driver, title), comprising the steps of:

compiling the driver against the kernel of the open source operating system after each modification to the kernel of the open source operating system (driver call to the OS, e.g., open(), write() or close() of page 2, and intergration in the kernel section of page 10);

wherein the compile service layer acts as an interface between the kernel of the

operating system and the at least one executable module of the device driver (it is the functionality of the service layer).

Matia does not explicitly teach a device driver having at least one module in executable form and a service layer in open source form.

Keller teaches a device driver having at least one module in executable form and a service layer in open source form (device driver software architecture, col. 7 lines 50 – col. 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Matia and Keller's system because Keller's device driver architecture would provide the basic concept of device driver to access to the operating system.

5. **As to claim 2**, Keller teaches associating the naming convention of function calls in the kernel to the naming convention of expected function calls in the device driver (col. 3, lines 58-61).

6. **As to claim 3**, Keller teaches linking the compiled service layer to the at least one module in executable form to form the device driver (col. 8, lines 11-14).

7. **As to claim 4**, Keller teaches a method as set forth in claim 3, further comprising the step of storing the device driver in memory (col. 7, lines 61-62).

8. **As to claim 5**, Keller teaches providing a device driver having multiple modules in executable form, each of the modules associated with hardware architecture of a computer system (col. 1, lines 24-28).
9. **As to claims 6-7**, they are rejected for the same reason as claims 3-4 above.
10. **As to claim 8**, it is the system claim of claim 1. See rejection for claim 1 above. In addition, Matia teaches the service layer receives kernel-specific function calls from the kernel of the operating system (fig. 1 on page 2).
11. **As to claims 9 - 10**, see rejection for claims 4 - 5 above.
12. **As to claim 11**, see rejection for claim 2 above.
13. **As to claim 13**, this is a method for loading a device driver in a computer system claim that corresponds to the method claim 1 and method claim 3. Therefore, it is rejected for the same reason as claims 1 and 3 above.
14. **As to claim 14**, see rejection for claim 11 above.
15. **As to claim 15**, Matia teaches the step of recompiling (re-compile, page 10).

16. **As to claim 16**, see rejection for claim 3 above.

17. **As to claim 17**, Matia and Keller does not specifically teach the step of determining, prior to compilation of the open source service layer, whether a precompiled device driver exists that is associated with the kernel of the operating system and loading the precompiled device driver if such a device driver exists. It would have been obvious to one of ordinary skill in the art at the time of invention was made to determine whether a precompiled device driver associated with the kernel of the operating system existed and load it prior to compiling the open source service layer. One of the ordinary skill in the art would have been motivated to check for the existence of a precompiled device driver and load it before compiling to save compiling time and computational cycles, thereby allowing the computer system to operate more efficiently.

18. **As to claim 18**, Matia modified by Keller teaches the step of wherein the function calls passed between the kernel of the operating system and the compiled open source service layer are not specific to the hardware architecture of the computer system; and wherein the function calls passed between the compiled open source service layer and the precompiled driver modules are specific to the hardware architecture of the computer system (figure 1).

19. **As to claim 19**, see rejection for claim 15 above.

20. **As to claim 20**, see rejection for claim 11 above.

21. **Claim 12 is rejected under 35 U.S.C. 103(a) a: being unpatentable over Matia “Kernel Korner Writing a Linux Driver” pages 1 – 12 in view of Keller, US patent no. 6,289,396, and further in view of Broman, U.S. Patent 6754858.**

22. **As to claim 12**, Matia and Keller do not specifically teach the name convention comprises the use of a suffix for the naming of function calls, the suffix providing a naming convention that is specific to the kernel of the operating system.

Broman teaches a naming convention in which a three-letter sumx is appended to the template name lcol. 17, lines 42-44).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Matia, Keller, and Broman's systems because Broman's step of using the suffix for the naming of function calls that are specific to the kernel would make function calls more understandable by making them easier to read and maintain. They can also give information about the function of the identifier that can be helpful in understanding the calls.

Response to Arguments

23. Applicant's arguments filed on 10/5/05 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

24. The prior art made of record but not relied upon request is considered to be pertinent to applicant's disclosure.

Gritzo, US patent no. 6,668,277, demonstrating an open-source operating system on which user may customize the kernel-level module.

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2194


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong N. Hoang whose telephone number is (571)272-3763. The examiner can normally be reached on Monday - Friday 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ph
December 23, 2005


WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER